

UMINGMAK Program

PLAN OF OPERATIONS
WINTER SEISMIC SURVEY

Submitted by



SAE Alaska

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UMINGMAK Program Area

Program Plan of Operations

Winter Plan of Operations/Project Description

1.0 Introduction

SAExploration, Inc and their joint venture partner, Kuukpik Corporation (Kuukpik SAE, LLC) is pleased to submit their plan of operation document for the Umingmak program area. Kuukpik SAE is requesting a multiyear permit to conduct activity for multiple clients within this permit boundary during the winter seasons 2014-2016. Kuukpik SAE will be conducting their operations during open tundra travel winter seasons within this boundary with an estimated start date of January 1, 2014 and continuing until May 31, 2016. Land ownership within this boundary area is largely Kuukpik Corporation lands, in addition to local, state, federal and private holdings within the North Slope Borough. Kuukpik SAE was formed as a joint venture to foster a relationship that augments the local economy, integrates local traditional knowledge into planning and by providing local subsistence stewardship into the operations.

The total proposed program area over three years encompasses approximately 3,681 sq. miles. In each season, Kuukpik SAE proposes to conduct one or two prospects for clients to be named and submitted to the agencies as “confidential” prior to the start of each winter season. Depending on client parameters, Kuukpik SAE plans to acquire approximately 200-400 sq. miles in each winter season. Please see Appendix A for map.

2.0 Purpose

The purpose of the proposed surveys is to acquire better quality, higher resolution seismic data. The project will use new recording technology to locate potential targets for existing production and future lease sales.

3.0 Location

The survey area encompasses approximately 3255 miles of land and approximately 302 State waters and 123 of Federal waters of the Beaufort Sea. The project area will include the following townships: Township 14N Range 001W-004W and 001E-002E, Township 13N Range 001W-004W and 001E-007E, Township 12N Range 001W-004W and 001E-007E, Township 11N Range 001W-004E and 001E-006E, Township 10N Range 001W-004W and 001E-006E, Township 09N Range 001W-004W and 001E-006E, Township 08N Range 001W-004W and 001E-006E, Township 07N Range 001W-004W and 001E-006E, Township 006N Range 001W-004W and 001E-006E, Township

06N Range 001W-004W and 001E-006E, Township 05N Range 001W-004W and 001E- 006E.

4.0 Permit Requirements

Provided below is a list of the permits, approvals and supporting documents required for operations described in this Plan of Operations.

PERMITS/APPROVALS

Federal Government	
• U.S. Fish and Wildlife Service	Letter of Authorization (LOA), Polar Bear Incidental Take – USF&WS
• Bureau of Land Management (BLM)	Land Use Permit Form 327 / 328
• Bureau of Ocean Energy Management (BOEM)	Letter of Authorization (LOA)
North Slope Borough	
• NSB	Land Management Development Permit
• IHLC	Form 500 / 600
Alaska State Government	
• Department of Natural Resources, Division of Oil and Gas	Geophysical Exploration Permit
• Department of Fish and Game	Fish Habitat Permit (Title 16)
• Department of State Historic Preservation Office	Letter of Concurrence
• Private Landowner	Surface Access agreements

5.0 Mobilization and Access

SAE will stage equipment from existing facilities in Deadhorse. Camp and equipment will be trucked via road infrastructure and/or ice roads to a staging area near the

prospect area for offloading. When offloaded, the camp and equipment will travel to the prospect location once tundra travel is open in the area of operations. All mobile equipment will have a navigation system installed for logistics and hazard Identification. Tracked and wheeled tundra vehicles will be used to transport the sled camp along the sea ice and or tundra. The camp will remain close to the survey activities and will move every 3-5 days depending on the survey progress and snow cover. When the survey is completed each season, the camp and equipment will travel along the tundra or sea ice back to an area for offloading and then trucked back to our Deadhorse pad location.

6.0 Survey and Ice check

Surveyors will establish survey controls. A base station will be set up and controls will be set with a satellite navigation system transported by tracked vehicles. One of the highest risk potentials for arctic operations is properly verifying the integrity of the ice. This will be done by “ice checking units” consisting of a Tucker vehicle capable of supporting 24 hour operations. The units will be equipped with ground penetrating radar systems, which is extremely accurate on fresh water. This system has its limitations on sea ice which in this case hand held drills will also be utilized. A grid system of drilled holes to verify and/or replace GPR data that may be questionable will be used when necessary. Where river channels exist, unusual surface fracturing is evident or drillings shows substandard ice the grid will be tightened up to insure a safe path for the equipment to follow. Freeboard can also be conducted when working on floating ice to insure the ice has the strength to safely hold the equipment. Preliminary trails or snail trails will be established for every foot that the vibrators must travel, which will minimize the potential for breaking through the ice. . Survey will also map each hazard that is discovered and placed into Tiger-Nav. In low snow years, snow surveys will be conducted to substantiate depths and will be recorded for equipment movement efforts

7.0 River Crossings

There may be areas where we encounter floating ice which may not safely support the weight of some equipment. In these cases, SAE may need to permit the activity to apply water to increase the thickness of the ice to establish temporary river crossings. There also may be areas on rivers, streams and lakes that need to be protected with snow for traversing from tundra to ice for crossing. SAE will make snow ramps in these areas and establish that the ice is grounded or the ice is of sufficient ice depth to cross. This will eliminate any impact to river banks and or tundra.

8.0 Recording Operations

Seismic operations will be conducted utilizing 12 (rubber tracked/buggy) vibrators that operate in groups of up to 3 or 4. Generally receiver (geophone) lines run perpendicular to source lines and will be typically spaced a minimum of 660ft apart. Geophones are

typically located every 110 ft along this line, but design pattern may change with clients. Wireless nodes and geophones will be laid out by crews on foot and by use of rubber tracked vehicles. There could be up to 24 receiver lines placed on the ground at a time with vibrators typically operating on two lines at a time. During offshore on ice areas of operations it is possible that the source lines will be groomed ahead of the crew to insure a smooth surface. Vibes will only shake on ice up too, but not further than 3 meters.

The energy source is a Vibroseis with a frequency of approximately 4 to 100 Hz; the anticipated duration is 4-8 seconds for each sweep. The duration and decibel level of the source varies depending on such factors as terrain and weather conditions; however, the levels are so low that hearing protection is not required for seismic crew members. Crew personnel would typically work a 12-hour workday. Communications with the crews, while out in the field will be via radio systems. The camp operates with a conventional phone system and will have internet access.

9.0 Camp Facilities

The 150 person camp will consist of sled-mounted units including a kitchen and diner, sleeping areas, washrooms, laundry, offices, shops, medical clinic, storage, generator rooms, and storage compartments. There will be approximately 38 trailers that make up the camp. The mobilization of the camp will be from either Oliktok Point, following the coast line to project area or off the existing ice roads near Alpine or Kuparuk. Camp trails will be scouted out in advance by PM to avoid hazards and measure snow depth. To minimize any tundra damage the sleigh camp could be moved up to 2 miles every few days, this will depend on the weather, snow covering and the advancement of the project.

The SAE HSE advisor and the local hire subsistence representative will revisit every camp site, after camp has moved on, to review the area and sign-off that no damage occurred.

Equipment included at camp stations will include long haul fuel tractors, remote fuelers, water maker, incinerator, resupply and survival sleigh, tractors, loaders and tuckers. Sanitary conditions in the kitchen and diner and washrooms will be maintained in full compliance with governmental regulations.

Potable water will be produced with a skid-mounted snow melter. Grey water will be filtered and treated to meet the discharge requirements of the Alaska Pollution Discharge Elimination System (APDES). During the active work season, crews will travel to the camp area either by personnel carrier tundra travel and or by plane.

Temporary airstrips may be maintained on grounded ice to allow personnel, food and fuel to be delivered to the work area.

10.0 Fuel Supply and Storage

SAE will be using long haul sleigh tanks for fueling with a possibility of using ice runways to support the crews' fuel needs in all prospects. A total of 4,500 gallons of fuel will be our average daily consumption. All fuel will be ultra-low sulfur for vehicles and equipment. Long haul fuelers will receive fuel at a staging area from the nearest approved service provider.

If fuel will have to be delivered by aircraft, it will be done on an ice runway due to the logistics of particularly remote areas.

If a runway is deemed necessary, SAE will build a runway on predetermined grounded, non-fish bearing, frozen lakes to serve as runways to receive the aircraft. An advance scouting trip with a subsistence representative will assist SAE in identifying grounded lakes that can be used for this purpose. Off-loading fuel from aircraft, will be done in accordance with SAE's fueling procedure with fueling storages located at least 100 feet from any water body and not be stored on the active floodplain of any water body. SAE fueling procedures include spill management practices such as drip pan placement under any vehicle parked; and placement of vinyl liners with foam dikes under all valves or connections to diesel fuel tanks. All fuel tanks are double- wall tank construction. Fuel dye is added to all fuel as part of spill detection. All spills, no matter what the size is tracked and cleaned up by SAE and used for spill prevention operations. SAE also holds a Spill Prevention Countermeasure Control (SPCC) plan for their fueling and fuel storage operations associated with seismic operations. This SPCC plan is site specific and will be amended for each new project. All reportable spills will be communicated through the proper agencies and land owners.

11.0 Waste Management

Food waste generated by the field operations will be stored in vehicles until the end of the shift. The garbage will then be consolidated at camp in wildlife resistance containers for further disposal. All food waste generated in camp will also be collected and stored in the same consolidation area. A skid-mounted incinerator will be used for daily garbage waste. Any wastes generated by seismic operations will be properly stored and disposed of in accordance with applicable permit stipulations and SAE controls. Food waste is continually incinerated to avoid attracting wildlife. Gray water discharge permits will be applied for with the DEC. Wastewater generated from the mobile camp will be discharged according general permit AKG426000 and 18 AAC 83.210 and NPDES discharge limits. Toilets are "PACTO" type to eliminate "black water". Ash from the incinerator will be back-hauled to the North Slope Borough disposal facility in Deadhorse. The sleigh camp will move approximately every two to three days depending on weather conditions. An inspection by the HSE Advisor will be done after camp has left are to insure that area is clean of all debris.

12.0 Wildlife

Wildlife that may be in the area during the winter season are owls, ravens, arctic fox, wolverine, musk ox, and possibly, over-wintering caribou. Grizzly bears also inhabit the general area in the project area, but are likely to be inactive during the winter season. Polar Bears are expected to be seen along the coastal areas and out on the sea ice. Although encounters with Polar Bears or grizzly bears are unlikely, SAE and its contractors will exercise caution during the project. Should a Grizzly Bear or Polar Bear be encountered, SAE would follow the procedures as outlined in our comprehensive wildlife Interaction Plan that is approved by the USFWS. Any sightings will be reported immediately to project manager and crew HSE advisor. Bear sightings will be reported within 24 hours to proper agencies. In the event of a problem bear or if an actual bear/human encounter occurs, the individuals listed below should be contacted immediately. Crew personnel will be instructed not to feed wildlife of any type per regulations 5 AAC 81.218 or in any other way attempt to attract them. SAE and its contractors will exercise caution while working and always watching for bear signs. Food and food waste will be kept inside vehicles while out in field. All Polar Bear data will be submitted to the USFWS and ADF&G within 30 days of the conclusion of the program. Logs will also be provided on the same day a bear is sighted unless otherwise instructed by USFWS or ADF&G agency personnel. Any other potentially useful information, such as possible den locations, will also be supplied. Logs and journals should be provided to both:

Mr. Craig Perham USFWS--Marine Mammals Management Section 1011 E. Tudor Road Anchorage, AK 99503 Tel. (907) 786-3810 FAX (907) 786-3816	Mr. Dick Shideler ADF&G--Habitat Division 1300 College Road Fairbanks, AK 99709-4173 Tel. (907) 459-7283 FAX (907) 456-3091
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13.0 Communication & Supervision

The following personnel at SAE can be contacted for information during the survey program are:

Rick Stolz Operations Supervisor Suite #102, 8240 Sandlewood Pl. Anchorage, AK 99507 907-522-4499
Suzan Simonds Permits and Regulatory Manager

907-522-4499
Rick Trupp General Manager 907-522-4499

14.0 Alaskan Hire

SAE and its contractors have a priority of employing local individuals on our projects and have worked with local villages in identifying qualified individuals that are interested in working on those projects. SAE will use local subsistence representative to avoid and minimize interactions with subsistence users and their resources, if appropriate for this area of the North Slope. We are also working with our contractors to provide opportunities for individuals who have shown an interest in being trained for skilled positions on our projects. SAE plans to hold public meetings in Barrow and Nuiqsut to inform local residents about available jobs with the upcoming winter project.

15.0 Community

SAE will be holding preliminary meetings in Barrow with the North Slope Borough, village associations and local contractors. These discussions have and will include text and visual documentation of the crew's activities, as well as the project boundaries. Prior to the commencement of the 2014 winter season and each subsequent season, SAE representatives will hold meetings in Nuiqsut to discuss the intended activities and to plan community interaction and communication for the duration of the program. It is anticipated that as a result of these meetings various protocols and procedures can be developed and implemented which will allow both subsistence and exploration activities to co-exist with respect to this project.

16.0 Historic and Cultural Resources

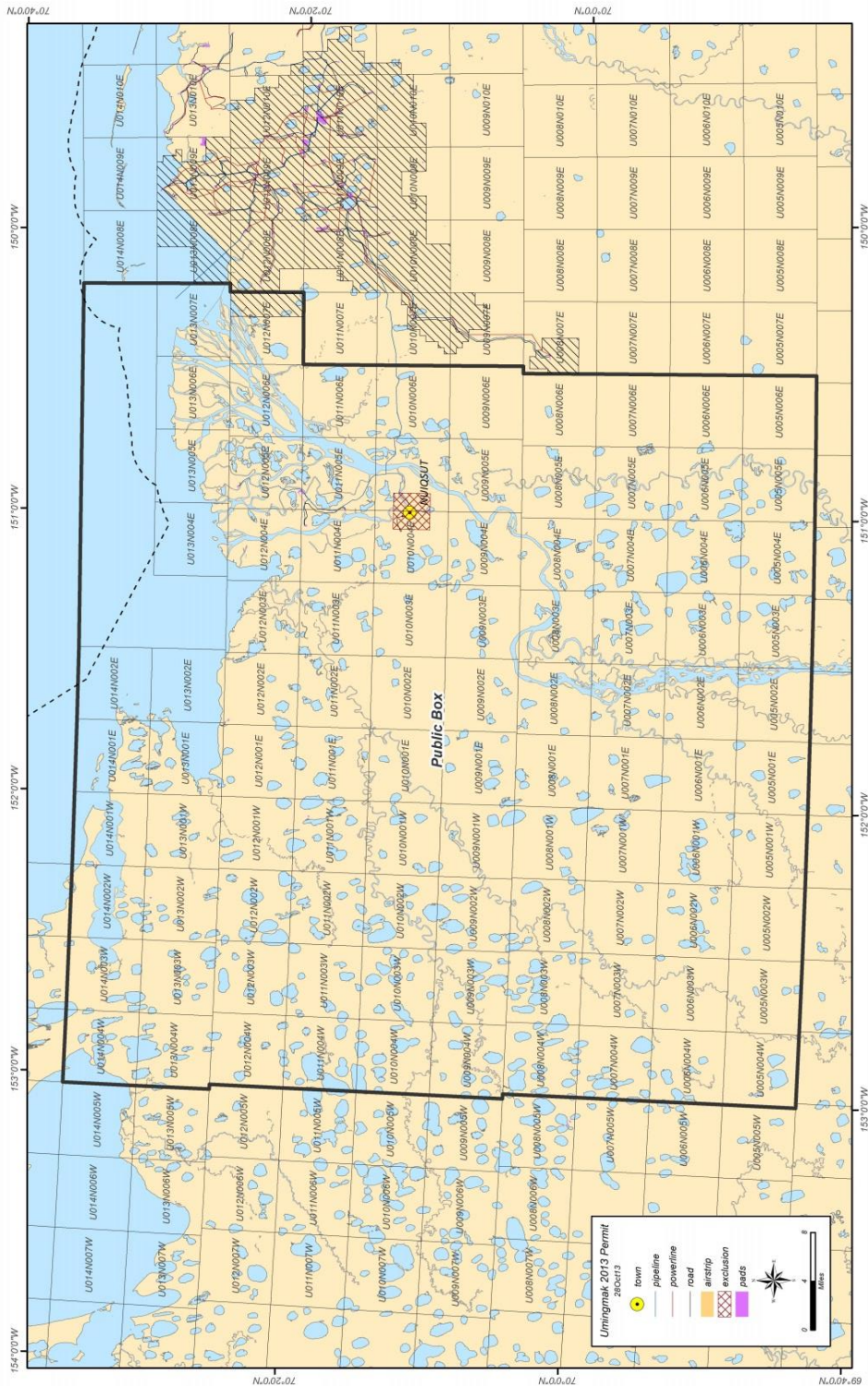
A cultural resources study for clearance will be conducted for the each winter season area of operation. Studies will continue as the project moves forward. SAE will work with the NSB to review existing records. The studies will include the use of the (AHRs) database, maintained by the Alaska Department of Natural Resources (ADNR); and the Traditional Land Use Inventory (TLUI) database, maintained by the NSB. Areas of field studies have already been completed. Previously recorded AHRs sites will not be affected by any of the proposed seismic activities. These areas will have buffers placed around them as a non-activity zone. These studies will be completed by a licensed archaeologist. The Archaeologist will work through the process listed in the form 600 and 500 of the North Slope Borough.

17.0 Appendices

Appendix A -	Permit Box Map
Appendix B -	Equipment List and Pictures
Appendix C-	Field Operating Procedure Polar Bear Protocol
Appendix D -	Wildlife Interaction Plan
Appendix E -	Spill Clean Procedure

APPENDIX A

Project Map



APPENDIX B

1	150 Man Camp
14,000	Nodes / Wireless
14,000	Geophones
7	Node Tuckers (300 node capacity)
4	Personnel Carriers
12	Vibrators (AHV4 Commander)
2	Long Haul Fuel Tractors
2	Remote Fueler with tractors
4	4,000 Gallon fuel storage tanks
2	3,000 Gallon tanks
1	Water maker (3,000 gallons/day)
1	Incinerator
1	Resupply and Survival Sleigh
7	Tractors
2	Dozers (M)
1	Loader (M)
3	GPS Stations

Deadhorse Pad

1	Mechanical Shop and Equipment Storage Pad
3	F-350 Flatbed Expeditor Units
1	Loader
1	Forklift

Approximate Equipment Weight and Ice Requirements

<u>Type</u>	<u>Contact Area</u>	<u>GVW</u>	<u>Tractor</u>	<u>Total Weight</u>	<u>Fresh Water Ice</u>	<u>Sea Ice</u>
	<u>Tractor (SQ INCHES)</u>	<u>Tractor</u>	<u>Displacement</u>	<u>Tractor - Trailer - Load</u>	<u>Required (INCHES)</u>	<u>Required (INCHES)</u>
Tucker	8320	11500	1.38	11500.00	18	23
Hagglund	2592	7500	1.45	7500.00	14	19
Challenger 65	7490	33800	4.51	33800.00	29	38
TT195	7490	41000	5.47	41000.00	32	41
TT195 with Fuel Sleigh	7490	41000	5.47	41000.00	48	60
Buggy Vibrator	9792	68000	6.94	68000.00	41	50
Tracked Vibe	11642	90000	7.73	90000.00	46	58
D7G		56000			37	47
977 Loader		56000			37	47

Photographs of Equipment



NODES

**Cable-Free/Radio-Free Autonomous Data Recording
Seismic Recorder (GSX)**



Tucker



Approximately 90,000 pounds with Tracks, 60,000 with tires

AHV4 Commander Vibrator (Source Equipment)



Vib rectangular baseplate

APPENDIX C

Field Operating Procedure Polar Bear Protocol

Purpose: To provide guidelines for assuring the prompt reporting, investigation, and documentation of Polar Bear sightings or incidents involving animals that is protected by the Marine Mammal Protection Act of 1972.

Scope: This procedure applies to all sightings or interaction with Polar Bears occurring

during operations on the North Slope.

Responsibility: The Project Manager and HSE Advisor have overall responsibility. They are responsible for coordination and implementation of all surveillance or monitoring personnel who deal with wildlife/human encounters or sightings on the North Slope.

Procedure:

1. When a Polar Bear is detected near any part of the operation, any employee (permanent, temporary, or contract) or visitor shall immediately notify the Project Manager or HSE Advisor.
2. The first priority is the protection of human life. The second priority is to avoid any situation in which a bear will be harmed.
3. The Administrative Office will sound the “air horn” with 5 short blasts and make a radio announcement on all crew channels of the sighting. At the sound of the “air horn, EVERYONE in camp is to go to the nearest trailer or vehicle and remain inside with doors and windows secured until the ALL CLEAR is given over the radio. The all clear signal is a long blast on the “air horn”.
4. In the field, drivers of each vehicle will advise the personnel they are responsible for and have them get inside the vehicles and wait until further notice.
5. If the bear takes refuge near, in, or under a trailer or vehicle and does not appear likely to move, crew HSE security will be notified depending on the location of operation. No action will be taken unless authorized by the USFWS or their designated agents. The District Manager and North Slope Security must be contacted at this time.
6. Areas which have been identified as possible denning sites will be avoided per the permit stipulations. (Typically, prior to mobilization, Polar Bear den locations are received and entered into our hazard mapping system.) Survey crew, trained in Polar Bear awareness, will be responsible as the lead vehicles in the field to scout for possible additional locations and bring to the crew’s attention at the daily safety meetings those locations. Possible locations will be staked in the field and entered on the hazard maps for the crew per permit stipulations. If a den is encountered protocols from USFW will be followed. Operations will then be evaluated and modifications to the operation will be implemented that will allow the avoidance of the denning site and the continuation of exploration activity.
7. When a sighting is made by a stand alone vehicle, such as the survey crew, they must not approach the bear further. The crew will notify the Project Manager or HSE Advisor via radio to alert them. The crew must avoid the bear and if necessary cease operations until the bear has left the area. The bear’s distance from camp will determine whether step 3(b) is required. All personnel must remain at least a one

mile distance in all directions from any known bear dens. The radio announcement must indicate whether this will be necessary or not. An all-clear signal will be sounded when the area is determined to be safe.

8. After any individual sighting or interaction with Polar Bears during operations on the North Slope, a Polar Bear Sighting Report shall be completed by the HSE Advisor. The SAE Permits Manager will forward this report to the Office of Marine Mammals Management as listed in the plan of operations.
9. A skid-mounted incinerator will be used for solid waste incineration. All garbage that contains any food will be bagged, stored inside the facilities and incinerated on site two times per day. The resulting ash will be back hauled to the North Slope Borough disposal facility during the winter season.
10. Winter crews will be trained to maintain a constant level of awareness for the potential conflict with Polar Bears. In areas where high potential of conflict exists, SAE will evaluate and if required, place a dedicated watch for Polar Bears in the area of operations. This is not to say that a continuous watch is not always in effect but rather that the crew will have a dedicated person or persons for oversight in areas of known denning or activity. A Polar Bear education program will be given to all workers on-site prior to the start of operations or at commencement of employment on the North Slope. Polar Bear awareness refresher briefings will be held as part of regular safety briefings. A dedicated Health, Safety and Environmental (HSE) Advisor will be based at the camp for the duration of the winter seismic program, and workers will be instructed to notify the Project Manager or HSE Advisor immediately whenever a bear is detected. All personnel will be aware of the restrictions regarding "taking" of Polar Bears as described by the Marine Mammals Protection Act. Approaching a bear for taking pictures or any other reason is strictly forbidden.

APPENDIX D

Wildlife Interaction Plan

Wildlife Interaction Plan / Procedure

Purpose: To provide guidelines for assuring the prompt reporting, investigation, and documentation of Polar Bears and Stellar Eiders, sightings or incidents involving animals that are protected by the Marine Mammal Protection Act of 1972. This plan also covers reporting of Brown Bears, Black Bears, Moose or any other wildlife that seismic crews may come in contact with during operations. This plan is intended to meet the requirement of a site specific Polar Bear awareness and interaction plan as required by 50 Code of Federal Regulations (CFR) 18.124(c)(3) and to meet the requirements for a Letter of Authorization (LOA) for the non-lethal, incidental and intentional take of Polar

Bear. Any permit stipulations that may be requested by permitting agencies will be added to this document as necessary.

Polar Bears: The United States Fish and Wildlife Service estimates that approximately 1,500 Polar Bears occur in the southern Beaufort Sea (SBS). Worldwide there are approximately 20,000 to 25,000 Polar Bears. During the summer months Polar Bears typically remain on the southern edge of the sea ice. However, they are also known to swim long distances, haul out onto ice flows and barrier islands and can occasionally be found on the coast. It is expected that Polar Bears will be encountered on ice, in the water and on barrier islands,

Responsibility: The Project Manager and PSO's have overall responsibility. They are responsible for coordination and implementation of all surveillance or monitoring personnel who deal with wildlife/human encounters, sightings and reporting on the North Slope.

Procedure:

Crews will be trained to maintain a constant level of awareness for the potential conflict with Polar Bears. In areas where high potential of conflict exists, SAE will evaluate and if required, place a dedicated watch for Polar Bears in the area of operations. This is not to say that a continuous watch is not always in effect but rather that the crew will have a dedicated person or persons for oversight in areas of known activity. A Polar Bear education program will be given to all workers at a pre-job conference or on-site prior to the start of operations or at commencement of employment on the North Slope. Polar Bear awareness refresher briefings will be held as part of regular safety briefings. A dedicated Health, Safety and Environment (HSE) Advisor will be based with the survey crew for the duration of the seismic program, and workers will be instructed to notify the Project Manager, PSO or HSE Advisor immediately whenever a bear is detected. All personnel will be aware of the restrictions regarding "taking" of Polar Bears as described by the Marine Mammals Protection Act. When a bear is in the immediate area of the crew location, workers will stay inside vehicles or aircraft and away from the bear. Approaching a bear for taking pictures or any other reason is strictly forbidden. USFWS will be called immediately.

Land based activities:

1. When a Polar Bear is detected near any part of the operation, any employee (permanent, temporary, or contract) or visitor shall immediately notify the Project Manager, PSO or HSE Advisor.
2. The first priority is the protection of human life. The second priority is to avoid any situation in which a bear will be harmed.
3. In a camp situation, the lead person with crew shall radio Project Manager/Administrative Office. The Administrative Office will sound the "air horn" with 5 short blasts and make a radio announcement on all crew channels of the sighting. At the sound of the air horn, EVERYONE is to go to the nearest vessel, helicopter, or vehicle and remain inside with doors and windows secured until the

ALL CLEAR is given over the radio. The all clear signal is a long blast on the “air horn”.

4. In the field, drivers of each vehicle will advise the personnel they are responsible for and have them get inside the vehicles and wait until further notice.
5. If the bear takes refuge near or in a vehicle and does not appear likely to move, crew HSE will be notified depending on the location of operation. No action will be taken unless authorized by the USFWS or their designated agents. The District Manager and North Slope Security must be contacted at this time.
6. When a sighting is made by a stand alone vehicle, such as the survey crew, they must not approach the bear further. The crew will notify the Project Manager, HSE Advisor or PSO via radio to alert them. The crew must avoid the bear and if necessary cease operations until the bear has left the area. The bear's distance from the crew will determine whether intentional harassment is required.
7. Personnel must remain at least a one half mile distance in all directions from any known bear. The radio announcement must indicate whether this will be necessary or not. An all-clear signal will be sounded when the area is determined to be safe.
8. After any individual sighting or interaction with Polar Bears during operations on the North Slope, a Polar Bear Sighting Report shall be completed by the HSE Advisor or the PSO. The SAE Permits Manager will forward this report to the Office of Marine Mammals Management, Craig Perham, 786-3810 by phone and or 786-3816 by fax, within 24 hours.

Aircraft:

1. Aircraft will not operate within 0.5 miles of Polar Bears.
2. Aircraft will avoid flying over ideal Polar Bear habitat including but not limited to sea ice and barrier islands.
3. When marine mammals are encountered aircraft will not operate below 1,500ft unless the aircraft is engaged in marine mammal monitoring, approaching, landing, taking off, or as conditions allow.

Subsistence Hunting:

1. SAEExploration will employ a subsistence advisor to reduce impacts on Polar Bear subsistence hunting.
2. Vessels and aircraft will avoid areas in which subsistence hunting is being conducted.

Reporting:

Polar Bears: When a Polar Bear is observed the PSO or crew member they shall immediately notify the HSE who will be responsible for filling out the Polar Bear report form. Reports of sightings will be sent to the USFWS on a regular basis through the Permits Manager.

Reports will be sent to:

Craig Perham
USFWS-Marine Mammals Section
1011 East Tudor Road
Anchorage, AK 99503
Telephone: 907-786-3800
Fax: 907-786-3816

Black bears / Brown Bears : (*Ursus americanus*) are the most abundant and widely distributed of the three species of North American bears. An estimated 100,000 black bears inhabit Alaska.

Black bears are most easily distinguished from brown bears by their straight facial profile and their claws, which rarely grow more than 1 ½ inches in length. Black bears have adequate sense of sight and hearing, but have an outstanding sense of smell.

Responsibility: The Project Manager and wilderness guides have overall responsibility. They are responsible for coordination and implementation of all surveillance who deal with wildlife/human encounters, sightings and reporting.

Procedure:

Crews will be trained to maintain a constant level of awareness for the potential conflict with bears. In areas where high potential of conflict exists, SAE will evaluate and if required, place a dedicated wilderness guides in the area of operations. This is not to say that a continuous watch is not always in effect but rather that the crew will have a dedicated wildlife guide for oversight in areas of known activity. Bear education program will be given to all workers at a pre-job conference or on-site prior to the start of operations or at commencement of employment. Bear awareness refresher briefings will be held as part of regular safety briefings. A dedicated Health, Safety and Environmental (HSE) Advisor will be based with the survey crew for the duration of the seismic program, and workers/wilderness guides will be instructed to notify the Project Manager or HSE Advisor whenever a bear is sighted by use of a hazard card. When a bear is in the immediate area of the crew location, workers will stay inside vehicles or aircraft and away from the bear. Approaching a bear for taking pictures or any other reason is strictly forbidden.

- 1 When a bear is detected near any part of the operation, any employee

(permanent, temporary, or contract) or visitor shall immediately notify the Project Manager or HSE Advisor.

2. The first priority is the protection of human life. The second priority is to avoid any situation in which a bear will be harmed.
3. In a camp situation, the lead person with crew shall radio Project Manager/Administrative Office. The Administrative Office will sound the "air horn" with 5 short blasts and make a radio announcement on all crew channels of the sighting. At the sound of the air horn, EVERYONE is to go to the nearest vessel, helicopter, or vehicle and remain inside with doors and windows secured until the ALL CLEAR is given over the radio. The all clear signal is a long blast on the "air horn".
4. In the field, drivers of each vehicle will advise the personnel they are responsible for and have them get inside the vehicles and wait until further notice. If no vehicles are near, the wilderness guide shall lead crew away from bear.
5. If the bear takes refuge near or in a vehicle and does not appear likely to move, crew HSE will be notified depending on the location of operation. No action will be taken unless authorized by the AKFG or their designated agents.
6. The crew must avoid the bear and if necessary cease operations until the bear has left the area. The bear's safe distance from the crew will determine by the wilderness guide. The distance should be far enough as not to affect the bears behavior. The radio announcement must indicate whether this will be necessary or not. An all-clear signal will be sounded when the area is determined to be safe.
7. Personnel must report any active bear dens. These dens will be mapped and sent to AKFG. After any individual interaction with bears during operations, the Bear Sighting Report shall be completed by the HSE Advisor or the wilderness guide. The SAE Permits Manager will forward this report to the agencies which are listed in the permit stipulations of all permits within 24 hours.

Spectacle and Steller's Eiders: (*Polysticta stelleri*) is a smallish sea duck that breeds along the Arctic coasts of eastern Siberia and Alaska. The lined nest is built on tundra close to the sea, and 6-10 eggs are laid.

It winters somewhat farther south in the Bering Sea, northern Scandinavia and the Baltic Sea. It can form large flocks, up to 200,000 birds on suitable coastal waters. It is scarce south of its wintering range.

If the proposed project area is within Spectacle eider and Steller eider habitat range the following protocol will be adhered to:

North Slope:

Land based activities:

Spectacled eiders nest and brood-rear in the area from mid-May to early June until late August to early September. Similarly Steller's eiders nesting areas are present in the Colville River, from mid-May through September. Marine surveys would take place along eiders migration routes to and from their winter habitat. Migration from nesting and breeding grounds to molting areas occurs late summer and fall. There is potential for impacts on eiders when survey personnel travel by foot off the road systems and through tidelands and small drainages on the Colville River delta. To avoid and minimize impacts on nesting eiders or eider's broods, crews would implement the following:

1. Adhere to eiders' nesting windows established by USFWS.
2. If working within the established windows, the field crew may scout the survey area before installing node.
3. Scouting must occur before selecting survey point (node location); areas with potential for nesting and/or breeding habitat (tundra areas adjacent to small ponds or within drained lake basins and wetlands) must be scouted in more detail.
4. If during selection of on-land survey points, the field crew discovers a nesting eider female close enough to cause her to abandon her nest, the survey point must be relocated.
5. Crews must not place on-land survey points within 200 meters from eider's nesting females.

Moose / Foxes / Wolverines or Other wildlife:

Moose, the world's largest member of the deer family, are a common animal in Alaska. While not normally aggressive, moose can become dangerous to people when they are hungry, tired of walking in deep snow, or harassed by people, dogs and traffic. The most important safety precautions are to slow down while driving and to always give moose plenty of space; never approach a moose. It is also illegal – and dangerous – to feed moose. This is true for all wildlife; there is no feeding or harassment of any type of wildlife.

Responsibility: The Project Manager and wilderness guides have overall responsibility. They are responsible for coordination and implementation of all surveillance who deal with wildlife/human encounters, sightings and reporting.

Procedure:

- 1 Avoid any interaction with wildlife.
- 2 Do not take any actions that would cause the animals to change course or behavior unless approved by Alaska Fish and Game
- 3 After any individual interaction with Moose or other types of wildlife during operations, the Wildlife Sighting Report shall be completed by the HSE Advisor

or the wilderness guide. The SAE Permits Manager will forward this report to the agencies which are listed in the permit stipulations of all permits.

- 4 If foxes or other wildlife take up shelter within camp area, notify the permits manager.
- 5 Feeding of animals is strictly prohibited.
- 6 There is no hunting or fishing allowed on project.

United States Fish and Wildlife Service
1011 East Tudor Road
Anchorage, AK 99503
Fax: 907-786-3816

Date: _____

Time: _____

Polar Bear Sighting Report

Location: _____

Observer name: _____

Weather conditions: Fog ____ Snow ____ Rain ____ Clear ____ Wind Speed ____
Wind Direction ____ Approx. Temp ____

Total number of bears: ____ Sow/cubs ____/____ Adult ____ Subadult ____

Estimated distance of bear from personnel/facility: ____/____

Possible attractants present: _____

Bear behavior: Curious ____ Aggressive ____ Predatory ____ Other ____

Description of encounter: _____

Injuries sustained: Personnel _____
Polar Bear _____

Deterrents used/distance: Vehicle ____ Noise-maker ____ Firearms ____
Other ____

Duration of encounter: _____

Agency Contacts: USFWS _____ Time: _____ Date: _____

ADF&G _____ Time: _____ Date: _____

SAE _____ Time: _____ Date: _____

SAE Representative: _____ Date: _____

United States Fish and Wildlife Service
1011 East Tudor Road
Anchorage, AK 99503
Fax: 907-786-3816

Date: _____

Time: _____

Pacific Walrus Sighting Report

Location: _____

Observer name: _____

Weather conditions: Fog ____ Snow ____ Rain ____ Clear ____ Wind Speed ____
Wind Direction ____ Approx. Temp ____

Total number of walrus: Adult ____ Subadult ____ Unknown ____

Estimated distance of walrus from personnel/facility: ____/____

Possible attractants present: _____

Walrus behavior: Curious ____ Aggressive ____ Other ____

Description of encounter: _____

Injuries sustained: Personnel _____
Walrus _____

Deterrents used/distance: Vehicle ____ Noise-maker ____ Firearms ____ Other ____

Duration of encounter: _____

Agency Contacts:
USFWS _____ Time: _____ Date: _____
ADF&G _____ Time: _____ Date: _____

SAE Representative: _____ Date: _____

Jesse Coleman
Habitat Biologist

Alaska Department of Fish & Game
Division of Habitat
ph: (907) 267-2812

Date: _____
Time: _____

Bear Interaction Report

Location: _____

Observer name: _____

Weather conditions: Fog ____ Snow ____ Rain ____ Clear ____ Wind Speed ____
Wind Direction ____ Approx. Temp ____

Total number of bears: ____ Sow/cubs ____/____ Adult ____ Subadult ____

Estimated distance of bear from personnel/facility: ____/____

Possible attractants present: _____

Bear behavior: Curious ____ Aggressive ____ Predatory ____ Other ____

Description of encounter: _____

Injuries sustained: Personnel _____

Bear _____

Deterrents used/distance: Vehicle ____ Noise-maker ____ Firearms ____
Other ____

Duration of encounter: _____

Agency Contacts: _____ Time: _____ Date: _____

ADF&G _____ Time: _____ Date: _____

SAE _____ Time: _____ Date: _____

SAE Representative: _____ Date: _____

Jesse Coleman
Habitat Biologist
Alaska Department of Fish & Game
Division of Habitat

ph: (907) 267-2812

Date: _____

Time: _____

Wildlife Sighting Report

Location: _____

Observer name: _____

Weather conditions: Fog _____ Snow _____ Rain _____ Clear _____ Wind Speed _____

Wind Direction _____ Approx. Temp _____

Total number of animals: _____ Type _____ / Adult _____ Subadult _____

Estimated distance from personnel/facility: _____ / _____

Possible attractants present: _____

Animal behavior: Curious _____ Aggressive _____ Predatory _____ Other _____

Description of encounter: _____

Injuries sustained: Personnel _____

Animal _____

Deterrents used/distance: Vehicle _____ Noise-maker _____ Firearms _____
Other _____

Duration of encounter: _____

Agency Contacts: _____ Time: _____ Date: _____

ADF&G _____ Time: _____ Date: _____

SAE _____ Time: _____ Date: _____

SAE Representative: _____ Date: _____

United States Fish and Wildlife Service
1011 East Tudor Road
Anchorage, AK 99503
Fax: 907-786-3816

Date: _____

Time: _____

Stellar Eider Sighting Report

Location: _____

Observer name: _____

Weather conditions: Fog ____ Snow ____ Rain ____ Clear ____ Wind Speed ____
Wind Direction ____ Approx. Temp ____

Total number of Birds: Adult ____ Subadult ____ Unknown ____

Estimated distance from personnel/facility: ____/____

Reactions of Bird _____

Bird behavior: Curious ____ Aggressive ____ Other ____

Description of encounter: _____

Injuries sustained: Personnel _____
Bird / Eggs _____

Reporting map location number: _____

Duration of encounter: _____

Agency Contacts:

USFWS _____ Time: _____ Date: _____

ADF&G _____ Time: _____ Date: _____

SAE Representative: _____ Date: _____

APPENDIX E

SPILL CLEAN UP PROCEDURE

1. SCOPE

This procedure is applied to people in camp and manipulator of fuel, it should be known by all the personnel, including subcontractors and visitors.

This procedure is applied to all the projects executed by the enterprise and, mainly, to the Environmental Coordinator, QHSE Advisors, mechanic, foremen of drilling and registry.

2. OBJECTIVES

Provide with a plan that allows to prevent and to correct the fuel spillages that can occur during the course of a Seismic Program.

Give instructions on the cleaning, in case of fuel spillages.

3. RESPONSIBILITIES

It is responsibility of the General Management, Management Operations and/or the Manager Representative, to approve this document and to provide the proper sources on the implementation of it.

It is responsibility of the Party Manager, QHSE Chief to verify, to establish and to execute the carryout of the procedure by giving support, advising and training.

It is responsibility of the Environmental Coordinator to spread and control the proper carryout of this procedure; another responsibility is to conduct the monitoring and the actions either corrective or preventive.

It is responsibility of people in camp, manipulator of fuel, mechanic, foremen and QHSE advisors in field to verify the carryout of this procedure.

4. DEFINITIONS

SPILLAGE Type A:

- Fuel spillage and/or oils less than 1 gallon during tanking, involving small quantities of water and solid waste (fabric, paper, etc.)

SPILLAGE Type B:

- Fuel spillage and/or oils in quantities between 1 and 55 gallons.

SPILLAGE Type C:

- Fuel spillage and/or oils in quantities above 55 gallons.

5. PROCEDURES

RECOMMENDATIONS

Spillage Type A:

- Stop the source
- Avoid the contamination of water sources
- Pick up the contaminated solids.
- Place them in red bags
- Take the bag to the recycling booth.
- Report to the immediate chief.

Spillage Type B:

Determine whether there is any injured person, if there is any, it should be estimated how many and carry out the MEDEVAC Plan:

- Stop the source
- Avoid the spillage to continue
- Stop the flow by building trenches or shoulders
- Avoid the contamination of water sources
- Utilize industrial absorbents
- Add absorbents to the ground and mix them
- Pick up the contaminated solids
- Place them in bags
- Report to the immediate chief
- Take the bags to the recycling booth

Spillage Type C:

- Determine whether there is any injured person, if there is any, it should be estimated how many and carry out the MEDEVAC Plan
- Isolate and cut any ignition source
- Report to the radio operator
- Control the continuity and the spreading of the spillage
- Utilize industrial absorbents
- Avoid the contamination of water sources
- Utilize industrial absorbents
- Add absorbents to the ground and mix them
- Pick up contaminated solids.
- Place them in bags.
- Report to the immediate chief.
- Take the bags to the recycling booth.

Spillage in shoulders:

- Identify the type of fuel spilled and check the safety sheet.
- Report it to the QHSE Department.
- Utilize, at any moment, PPE.
- Keep away the non-authorized personnel.
- Control any ignition source in the area (sparks, fire and smokers).

- Recoup the fuel using a non-electrical pump or a manual system.
- Store it in drums so later on it can be handled as a contaminated fuel.
- Utilized absorbents to take off whatever is left.
- Utilize tools that not cause sparks.
- Do not touch the fuel or walk on the spillage.
- Carry out the estimation and investigate the causes of the incident, handing it in to the Party Management.
- Spread the learned lessons and the actions taken to the personnel so these incidents are not repeated.

Spillage on the ground:

- Identify the type of fuel spilled and check the safety sheet.
- Report it to the QHSE Department.
- Utilize, at any time, PPE.
- Keep away the non-authorized personnel.
- Control any ignition source in the area (sparks, fire and smokers).
- In the case of any slope in the terrain, build a containment dike.
- Recoup the fuel by removing the affected ground surface, deep to the area where there is not more fuel detected.
- Place it in resistant plastic bags, mark it and send it to the base camp.
- In base camp, it would be weighted and the environmental incident would be registered.
- Carry out the estimation and investigate the causes of the incident, handing it in to the Party Management.
- Spread the learned lessons and the actions taken to the personnel so these incidents are not repeated.

Note:

- After controlling the spillage, an investigation should be carried out, as well as to generate the learned lessons.
- The procedures of prevention, mitigation and control of spillages should be revised.

6. PERFORMANCE MEASURE

Carry out inspections and audits to the camps, including the fuel areas.
Make questions to the workers about the knowledge of this procedure.
Verify the registry of orientation and talks about this procedure.

7. REFERENCE

This procedure is adjusted to the following documents:

- Environmental Procedures.
- Emergency Plans.

8. APPENDICES

- Environmental Impact Studies
- Environmental Management Plan

- National Legislation
- Supreme Decree

9. REVISION HISTORY

Rev. N°	Date	Change Description	Page
01	Feb 2009	Original document	All
02	Apr 2010	Corporative Version	All